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FIG. 38. Identification of young plants is difficult. Do you know this one?

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FIG. 39. The habitat of *Pseudorhipsalis macrantha* in Mexico.

FIG. 40. *Pseudorhipsalis macrantha* flowering under glass in New York.

Notes on Pseudorhipsalis macrantha

By T. MACDOUGALL

(See Journal Vol. XIV, pg. 19)

Herewith is a habitat view[1] of the species. The pictures were taken looking in a northerly direction from the Sierra Madre, between the Isthmus of Tehuantepec and Chiapas, Mexico, at an altitude of 4500 feet. Epiphyte laden trees in the foreground tell the story of prevailing and moisture laden north winds. Another picture illustrated the several flowered areoles common to older pads;[2] often five or six buds will develop from one areole. The third picture shows my largest specimen. This plant is in a hanging basket, lined with sphagnum moss, and filled with a porous compost of sand, rotted cow-manure, humus, and loam. During the past season this plant has responded well to rather liberal watering and to several applications of various organic fertilizers, diluted with sand. At present the surface of the compost is a network of feeder roots.

[1]Figure 39 on opposite page.
[2]Fig. 41 on next page.

EDITOR'S NOTE: We are glad to show additional photos of this rare, new species described by E. J. Alexander in 1942. We may look forward to some new discoveries by Mr. MacDougall and Mr. Alexander who are still in Mexico collecting plants.

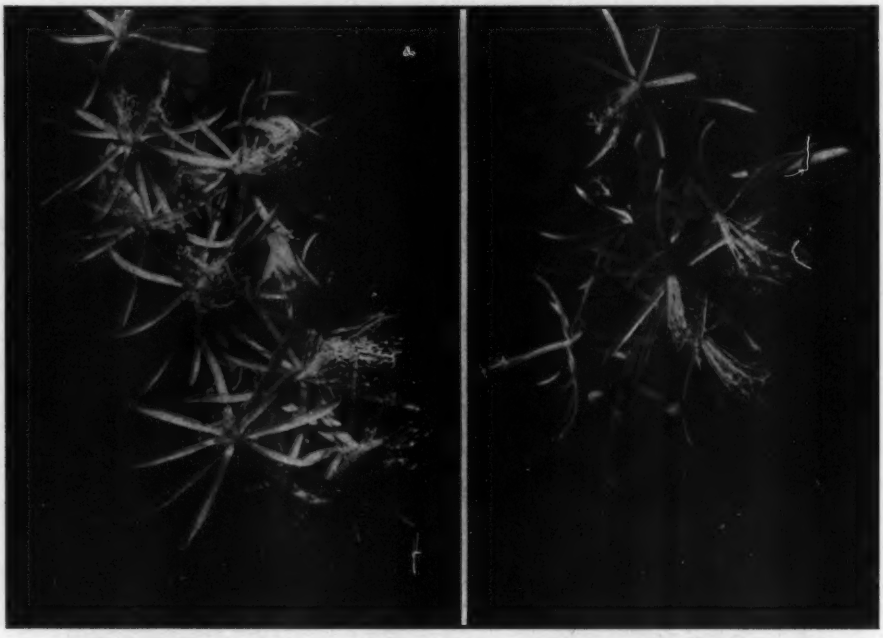


FIG. 41. Close-up of *Pseudorhipsalis macrantha* flowers.

Succulents In Australia

By C. J. WHITE

In S. E. C. Magazine

I must confess that, before visiting the garden of Mr. J. Cecil Johnston (Supply Engineer, Distribution Division, E.S.D.) at his home at Kew,* cacti were chiefly associated in my mind with spines and prickles and the dusty wastes of the deserts of Arizona, as depicted on the films.

However, all such pre-conceived ideas faded away at the sight of Mr. Johnston's garden. Not only did I find that cacti and succulents can be a most interesting study, but that they include many plants which are most beautiful both in form and colour. My visit, unfortunately, did not coincide with the time of the year when the best display of flowers is to be seen, many of the varieties being Spring-flowering, but there was no lack of colour in the foliage. The tints ranged from different shades of green to pink, yellow, mauve and silvery blue, and Mr. Johnston has used great artistry in grouping them to show the colours to the best advantage. He is, moreover, not merely a collector of cacti, but finds his chief interest in a study of their habits.

The splendid pictures which Mr. McLister has taken of Mr. Johnston's collection give a very good idea of the beauty of these plants, but only a colour film could do justice to the range of tints—especially in table arrangements. A bowl of succulents, as it was placed on its pedestal against a background of dark foliage, with the autumn sunlight shining upon it, presented such a beautiful picture that it is hard to find words to describe it.

Time went all too quickly, and seldom have I spent a more interesting morning than in Mr. Johnston's garden. His enthusiasm is infectious, and sets one considering whether some of those odd corners of one's own garden cannot be improved by introducing some of these fascinating and colourful plants.

*Kew, Australia.

FIG. 42. J. Cecil Johnston in his rockery. Among the specimen plants are: *Cereus peruvianus, Opuntia leucotricha, O. tomentosa, O. spinosior, O. subulata, O. robusta, O. vestita, O. basilaris, Lobivia pentlandii, L. bruchii, Echeveria macabeana, E. gibbiflora* var. *flammea, Euphorbia polygona, E. ingens, Aloe spinosissima, A. plicatilis, Portulacaria afra.*

I will now allow Mr. Johnston himself to take up the theme:—

"I think this article might well be described as 'A Cactus Catechism;' besides, it would be much easier for me to proceed in the form of question and answer, because Mr. White, in his thirst for information, missed few, if any of the points that interest the intelligent observer and nature-lover who settles down to study a collection of cacti, probably for the first time.

"Why am I interested in these strange plants? Well, they have a greater variety of form and colour than any other family of plants. In size, they range from giants of 60 feet high down to pigmies that when fully grown are just little balls of less than one inch in diameter. Some have fearsome spines ten inches long; some are completely covered with long hair; some have short hair, or fur, and one—believe it or not—has what appeared to be small feathers. Yet others are quite bald. The tints of the spines are just as varied, and range through all the colours of the spectrum. Flowers are an added joy. In an infinite variety of colour they vary in size from 13 in. to ¼ in. in diameter. Some of the purely succulents are equally colourful and interesting, and the way they imitate their surroundings is remarkable. What is more, they are of interest all the year round, because many species of succulents are at their best in mid-winter, when most other plants are dormant. It is possible, by a careful choice, to have some in bloom in every month of the year.

"The study of cacti is one that considerably enlarges one's circle of friends. For instance, I corresponded with fellow-students in all of the other Australian States, and in New Zealand, Japan, Mexico, Texas, California, Canada, England, Germany, Czechoslovakia and South Africa. This exchange of notes and plants not only gives one much pleasure, but also adds to one's stock of knowledge. Most hobbies fall under one or the other of the following headings—(1) making things, (2) collecting things, (3) doing things, and (4) learning things. This hobby combines all four: collecting, plants and literature; making, rockeries, labels, experiments (electrical and otherwise); doing things, seed-raising, visiting other collections, corresponding and tending one's plants; learning things, botany, chemistry and geography.

"Mr. White asked me if there were not a

danger in encouraging the growth of cacti in Australia, 'after our bitter experience in Queensland.' I was able to assure him that the only menace is the Opuntia, or 'prickly pear' family, the importation of any member or seed of which is absolutely prohibited. In any case, very few of the 600 members of this family are of any interest to collectors, so there is no incentive to circumvent the law. Besides, some members of the family are so rare in their native haunts that their exportation is prohibited!

"While the growing of some varieties of cacti is extremely difficult, the cultivation of the majority is easy. One soon learns how to manage them as soon as some popular fallacies regarding them are exploded. Firstly, cacti *do not* grow without water, in sand, and there are very few that will survive if exposed to the blazing sun all day long. A cactus or other succulent will live on its stored water for some time, but it will make no natural growth without moisture. Pure sand contains no plant food at all, but most of the so-called desert regions whence these plants come are more fertile than our Mallee, having fairly rich soil beneath a comparatively shallow layer of sand. Photographs of the plants in their original surroundings show them to be partially shaded by small shrubs and grasses. Though the rainfall in such regions is very meagre and the day temperatures are high, yet the nights are cold, and absorb dew through their spines. To grow cacti in captivity, a very porous and fairly rich soil is needed, and the plants will take as much water as you can give them when they are growing vigorously in the hot weather. In the cold, damp weather of winter, when they are resting, they should have practically no water. Most of the smaller varieties should be protected from the mid-day summer sun.

"With the exception of a small genus, which is found in tropical forests in various parts of the world, every cactus originated in the central parts of America, the greatest variety being found in Mexico.

"Mr. White noticed some of my glasshouses, and asked if the plants grow better under glass. I explained that many of them do much better outside, even in Victoria, although they thrive more vigorously in warmer States. I use glasshouses for the more tender varieties and also for those which would become weather-beaten outside. They are also a protection against birds, which would pull the hair off the plants as lining for their nests.

"My glass-houses are not artificially heated, except for a short length of bench, where I am carrying out some experiments in soil-heating. Of course, I am using electricity for the purpose. Electricity is ideal for some purposes—and I'm not prejudiced, as my last year's bill for kerosene will show. For soil-heating, I just had to use electricity, as I found it to be the only satisfactory means of controlling the burners. The running cost of kerosene was reasonable, but looking after the burners was a real curse, never to be endured again. I also found that plants were likely to be injured by the products of combustion from kerosene unless the ventilation were perfect. Electricity of high and low voltage is used by me in hot boxes for seed-raising. The heat, of course, is thermostatically controlled. For other purposes I use electricity for sterilizing soil, through which a current is passed. Now, at odd moments, I am trying to make up an electrical pehameter with which to measure the alkalinity and acidity of soil. There are many other applications of electricity I am living in hopes of making.

"My cacti mainly come directly from their native land. Some I have obtained from dealers in other countries; a fair number through exchange, and many I have raised from seed. Some plants do not stand the journey from the other side of the world too well, but about 90 per cent. can be nursed back to life from their rather mummified condition and appearance. Other succulents do not travel as well as cacti, and the mortality en route is as high as 20 per cent.

"I recollect other questions by Mr. White, and what follows are my answers to them:

"One soon becomes familiar with the botanical names of the various plants; these names are the Esperanto of the plant world. A long name is nearly always descriptive of the plant that bears it, and quickly identifies it.

"Cactus spines are not poisonous. Probably the fallacy arose through people mistaking the succulent Euphorbias, which grow in Africa, for cacti, as some of them are quite spiny. These Euphorbias contain a milky juice, which in some species is so poisonous that it is used by the natives for poisoning their arrows.

"There are hundreds of practical uses for cacti—sufficient to write a book about. In America, one can buy a cookery book of over 50 different recipes for cacti. In some parts of the U.S.A. cactus candy is quite common. The fruit of some varieties has the flavour of strawberries, and fetches good prices. In some parts of Mexico the fruits of cacti form a big item in the Indian's diet. The barrel cactus also provides drink; the top is cut, and a hole scooped out. This rapidly fills with sap, but one would have to be pretty thirsty to tackle it, as it is acrid stuff. One cactus supplies fish-hooks; another columnar variety is used for fencing, while the skeletons of some species make durable building

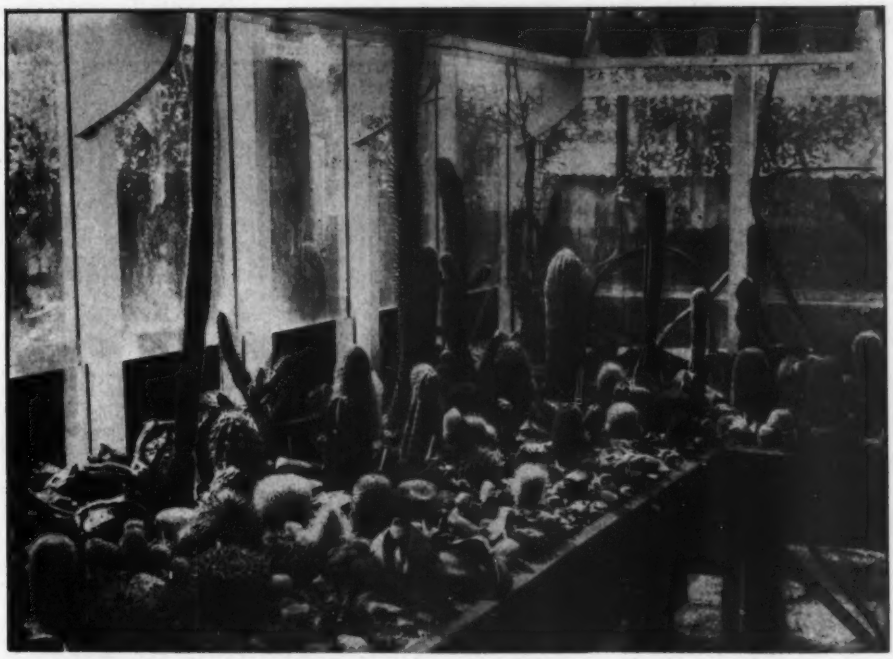


FIG. 43. A corner in the glasshouse shows the following plants: *Gymnocalycium multiflorum, G. mihanovichii, Brittonia davisii, Mammillaria spinosissima, M. collinsii, M. hahniana, M. multiceps, M. rhodantha* var. *rubra, M. perbella, M. geminispina, M. compressa longiseta, M. micromeris* var. *albicans, M. durispina, M. droegeana, M. candida, Echinocereus enneacanthus, Cleistocactus baumannii, Wilcoxia schmollii, W. viperina, Borzicactus aurvillus, Lemaireocereus chende, L. stellatus, Notocactus schumannianus, N. tabularis, N. pampeanus, Cephalocereus piauhyensis, Cereus caesius, Binghamia melanostele, Hylocereus ocamponis, Rebutia minuscula, Trichocereus poco, Selenicereus pteranthus, Euphorbia heptagona, E. morinii, E. cereiformis, E. clandestina, Pleiospilos simulans, Bowiea volubilis, Haworthia rheinwardtii, Lithops myerii.*

material. Then there is a small spineless variety known as the 'Mescal Button.' 'Dry Whisky' is another name for it, as it produces a powerful narcotic, used by the Indians in their religious ceremonies. It induces a most tranquil condition of mind, which it fills with beautiful visions in roseate hues. The Mexican Government is trying to stop the use of it, but so far with little success. In some parts of the world an infusion of certain varieties of 'prickly pear' is taking the place of insulin injections for diabetes. When I was in New Zealand a few years ago orthodox medical men were prescribing it for their patients, and at two places I visited they were selling pieces at 1/6 per lb.

"I have over 900 different named species of cacti and 650 other succulents, about 100 for which I have not found names. A few have not been christened yet, as they were discovered in Mexico only last year. I don't find time to look after this collection myself. I am lucky in having a wife who is almost as interested in them as I am, and without her assistance I fear my collection would be quite small."

IMPORTANT NOTICE—BINDING JOURNALS—DEADLINE JUNE 30

We have been promised materials for binding back issues of the JOURNALS, so if you can spare yours for 60 days, mail them to Scott E. Haselton, 136 West Union, Pasadena 1, California. Please enclose $1.50 for each volume to be bound. This is the last chance to have back volumes completed and bound before price advances. If you are missing any of the issues, please add 50c for each required copy and we will do our best to complete your set. Be sure to send an index for each volume or add 25c for each one missing. Remove carefully all Werdermann reprints of "Brasilien Kakteen"—you should have 15 sections including the last one in the April issue. You may also have this reprint bound at this time by sending your 15 sections with $1.50. If any of your sections are missing add 25 cents each. You may send your books in for binding up to May 30 which will be the dead line. Please follow instructions carefully because we cannot send invoices for any bindings. Miscellaneous books may be bound at $2.00 each.

May 1. Watered the collection again today. Got last water April 26. Liberal—until water runs through drainage hole. Too hot this year for comfort. Too cold last year for same. Outer perianth segments opening on *Selenicereus spinulosus*. Tips at right angle to segments. Inner only slightly so. Bloomed fully by 8:30 p. m. Buds have developed at the ends of dormant tips of stems. Plant has two 20-inch stems which have rooted into pot from original stem at point stems turn six inches above pot. Aerial roots on Selenicerei brace and nourish stems when allowed to root down in pot. Blooms best when in rich humus soil with one-third sand mixture and slightly pot-bound.

May 3. Chamaecereus sylvestrii-crassicaulis (see picture, page 40, Cactus and Succulent Journal, September, 1937) budded in three places. Branches up and down stem as well as from base. Buds are like *Lobivia aurea* tube. Bloom like the latter in shape but yellow-apricot when first open which gradually darkens to copper by third day. *C. sylvestrii* also budded. Bloom smaller, reddish orange; bud much smaller, shorter tube.

May 5. Stomatium fulleri in bloom before I, "Old Eagle-Eye Rodgers" saw it. The yellowish-green rayed flowers open late in the afternoon and stay open until after dark. Last blooms closed on *Schlumbergera gaertneri* (began February 16). Blooms last when plant is partially shaded. *Mammillaria camptotricha* budded. Has four side offsets. Nicknamed "bird's nest." Long yellowish spines which mat the surface do look that way.

May 7. Rebutia senilis as well as variety *stuemeriana* budded. Bloom on *R. senilis* is blood red with yellow anthers and white stigma. Black spot that drys up spongy tissue so it falls out and leaves holes through stems has appeared in hardy Opuntia collections hereabouts. "Shot diseases" from Texas? Stays on limited area of stem of *O. compressa*. Attacks plants uprooted by winter thaws. Seedlings of three to ten stems very seldom attacked. New growth not bothered. Disappears during dry hot summer. Spores?

May 11. Pachycereus marginatus with five ribs put out two spine tips and began seven ribs then went back to five. *Oreocereus celsianus* aglow with long white silky hair and brown spines. Pretty, but I don't expect it to bloom. It's a "dud" during my first ten 5-year plans. Collection incomplete without a few columnar cacti, however.

May 16. Cereus mallissonii bloomed, 4½ inches across. A free-blooming hybrid of *Aporocactus* x *Heliocereus*. Responds to kiln dried cow manure stirred into soil and liberal watering. Stems pendant, round, thicker than *Aporocactus* stems. New growth spiny. All of my 28 odd (or even) species of Haworthias have bloomed except *chalwinii* and *Reinwardtii*. If you are disappointed with the smallness of the Haworthia flowers buy *haageana* and *turgida;* blooms much larger, finer, and on shorter stems.

May 18. Euphorbia globosa covered with short peduncles of blooms. Set seed pods so I thought but seed didn't become ripe. *E. "lydenburgensis"* growing—one of the most symmetrical plants I have; four sided with double spine at each tubercle which gives it a square appearance. Has been sold around Cleveland as *"squarrosa."* Hasn't bloomed as yet, but spine shield does extend to flowering tip as White, Dyer and Sloane mention in "Succulent Euphorbieae." Have my more delicate types such as *E. globosa, E. tridentata,* and *E. ornithopus* double potted. Conserves moisture and protects rosettes from rapid drying, as well as temperature changes. Grow better now. Soil is rich but filled with coarse sand and pea gravel. Like shade during mid-day.

May 23. Leuchtenbergia principis "baking" on top shelf next to glass. New growth started. Responded to this treatment last year and had three blooms. Hadn't bloomed before for me or for Eugene Ziegler after first year it came from Mexico. Prefers to be on dry side. Stalk looks like a palm tree trunk. Three inches in diameter. Loses a square tubercle now and then but continues to grow. Has a 7½ inch spread across top. Blooms appear at tips of the finger-like tubercles. Peculiar place, I looked between them at base. *Ariocarpus fissuratus, Hamatocactus hamatacanthus, Echinocereus knippelianus* (bloomed April 8), *Echinocactus horizonthalonius, Trichocereus lamprochlorus, Ferocactus lecontei* on same shelf baking, too. Watered once a week. Results expected, yes, sir.

May 25. Set last of cacti and succulents stored in basement on back porch to acclimate themselves to outside conditions. No more danger from frost until middle of October. Strange but we can't "jump the gun" here by the Great Lakes even when warm weather comes in March. 15th of May is plenty early to plant tender plants. Cacti, too.

May 27. So far none of my Agaves have decided to bloom. I'm not sorry either. Plant dies and blooms are not beathtaking. I'm an Agave foliage fancier only, I guess. *Agaves Victoria-reginea* and *ferdinandi-regis* each have "suckers" or offsets. The former has central spines and two teeth and is not supposed to offset. I use small pots which induces offsets, I'm sure. I use a clayey soil for the ranker growing types and a well drained soil for the smaller types.

May 29. "Community plantings" are proving best for my numerous small non-vineing succulents and smaller varieties of cacti. Use an inch or so of coarse drainage materials in 14-inch bulb pot then fill up pot with soil and plant succulents. Water once a week during winter and oftener as weather warms up. Plants respond to treatment, grow faster and more normally. Less care. The disadvantages of such planting are wasted bench space because larger pots take up less room but leave space between which cannot be used to advantage, and one is not able to examine plants individually. Plants do bloom better than in clay pots.

May 31. "Haworthia margaretifera variety *granata"* in bloom. Is evidently a *Gasteria* hybrid. Blooms bell-shaped, regular form with gasteria pouch but straight and only slight tinge of orangy pink at base. Pretty, too. *Epiphyllum cartagense* budded in six different places. Annual performer for me from June to October outside and on into December in greenhouse. Buds do not blast when moved from backyard into warmth of greenhouse. Does not like to have its roots disturbed, so I top-dress plant in February and start watering. Stems need winter care as they wither easily.

NOTE: Cleveland is not the bad place our well-meaning secretary C. A. Place wrote in his column, "Affiliate Notes." We do plan "to put in a bigger and better exhibit in the beds available at the Wade Park Horticultural Gardens." We, however, did not lose any plants either through drought or theft last year but we did expect to. I hope you folks that read this indictment will send on plants just the same; if you intended to, as before.

INSECTS THAT ATTACK CACTI AND SUCCULENTS

FIG. 45. Leaf of Century Plant (*Agave atrovirens*) showing discoloration caused by mealy bugs.

FIG. 44. Opuntia attacked by mealy bugs.

Insects That Attack Cacti and Succulents

By LADISLAUS CUTAK

Reprinted from the Missouri Botanical Garden Bulletin through the courtesy of Dr. George T. Moore, Director.

In the deserts one will find innumerable insects associated with cacti and succulents; some of these are beneficial in that they visit the flowers and act as agents of pollination, while others damage the plants either directly or indirectly. The United States Department of Agriculture made a study of cactus insects in 1912 and discovered that there were 324 species associated with these prickly plants. Not all were of the harmful type, but the greater number did cause damage of some consequence. Of course, in the native haunts of these plants, through various agencies such as birds, snakes, lizards, frogs, toads, and certain parasitic and predaceous insects, a natural balance of order prevails which helps to control the pests.

In the home or greenhouse very few native pests will infest cacti or succulents, but there are several common ones that do considerable harm if a careful watch is not kept. During the summer, grasshoppers, crickets, caterpillars, etc., are present in the flower garden and will get into a cactus bed or in a greenhouse where they may overrun the plants before a remedy can be applied. Such greenhouse pests as the mealy bugs, scales, and thrips will also be difficult to control if a dense infestation is allowed to accumulate. Vigilance is the price demanded of a clean collection.

Where injurious insects appear it will be expedient to use insecticides especially designed for the particular pest. The grower must learn whether the "bug" is a chewer or a sucker. The insects that bite and chew, such as the caterpillars and beetles, can be controlled by the use of poisons or poisonous gases. The poisoned food must enter the stomach to do the work of eradication. On the other hand, sucking insects (aphids and mealy bugs) can be controlled only by the use of contact insecticides or poisonous gases. Nature provides the suckers with needle-like mouth parts which enable them to pierce plant tissues and extract the juices. You could spread a thick layer of arsenate of lead on a leaf and a sucking insect will not be affected by it. However, in contact sprays the poisonous alkaloids, such as nicotine, aid in sealing the insect's breathing pores and disintegrate the body tissue.

Arsenate of lead is probably the most widely used stomach poison. It can be applied as a spray or dust or used in poison bait. For a spray, a solution of about ten teaspoonsful to a gallon of water will be sufficient to kill most chewing insects. When used as a dust, part of the poison should be mixed with about nine parts of flour, talc, or hydrated lime. Paris green is another arsenical product which is highly efficacious when used in bait. Of the contact insecticides, nicotine is probably the most popular. It may be wiser for the individual with a small plant collection to get acquainted with some of the standard insecticides that are manufactured under various trade names.

The most persistent and most serious pests of the cultivated cacti and succulents are the scale insects, in which group the mealy bug belongs.

Many others exist but, as a rule, they are of minor importance, although it must be remembered that even these can do considerable damage. In the following paragraphs the common pests which are apt to do the most harm to greenhouse- or house-grown succulents are discussed and also various methods for their control.

Mealy Bugs.—Of all the insects that attack a cactus or succulent plant, none are of such importance as the mealy bugs. There are many species, most of which are easily recognized by the white cottony substance covering them. The "bug," because of its peculiar structure and the rapidity of its reproduction, is one of the hardest insects to hold in check. The female has the ability to lay about 500 eggs, secreting them in a mass of "cotton," which hatch out usually in ten days under greenhouse conditions. Since several generations are born in a year the immensity of an infestation is readily seen if no attention is paid to it. In the adult stage mealy bugs usually restrict themselves to a certain area on a joint or leaf where they sink their needle-like beak into the plant tissue and draw out the juice. The immediate area attacked soon becomes lifeless, drab in color, and eventually dies. The "bugs" usually collect in protected places,—in the grooves of new growth, under the leaves, in the clasping leaf sheaths, at the bases of joints, or hidden in the wool of the spine clusters. The destructive juice-suckers may attack any cactus, but they often single out the Echinocerei, Echinopsis, Mammillarias, Opuntias, Rebutias and Zygocacti. They also love to ravage the stapeliads, mesembs, kalanchoids, and most any other succulent.

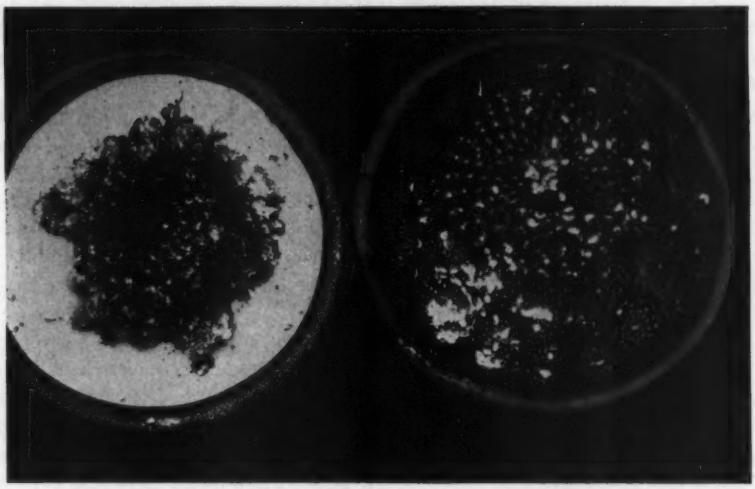


FIG. 46. *Rebutia minuscula*: right, a plant infested with mealy bugs; left, a plant totally destroyed by these pests.

When the tough cacti are heavily infested with mealy bugs a strong spray of water will dislodge the culprits and likewise wash off the sticky excrement that they leave. Cacti, as a rule, are sturdy enough to withstand a strong hosing, and this method is very effective where the mealy bugs have hidden behind a spiny armament. Tender succulents must be very gently sprayed,

particularly the crassulaceous plants whose leaves and stems drop off at the merest tough. The writer prefers hosing to any treatment, although cyanogas fumigation is restored to in the Cactus House when the infestation is widespread.

Root Louse.—This insect is similar to the mealy bug but is even more devastating in its work. The dormant season of a plant affords an ideal period for the development and increase of this pest, which attacks the roots and does its damage before its presence can be detected. Whenever a cactus or succulent plant appears sickly it will be a good idea to remove the plant from the pot and examine the roots. If any white cottony masses are noticed, shake off all the soil and dip the roots in denatured alcohol for about two minutes. After this operation permit the roots to dry thoroughly before repotting, a clean container and fresh soil being used for the purpose. If no alcohol is available, a thorough hosing or rinsing in cold water is advisable. The root-louse thrives in a dry soil, and if plants are grown too much on the dry side the infestation increases.

Scale Insects.—Many varieties of scale insects attack cacti and succulents. The pests can be recognized by their more-or-less arched, thick and rigid, shell-like covering. The adults fasten themselves tightly to the stems, joints or leaves of the plant, and suck out the juice. Scale readily attacks the pads of Prickly Pears (Opuntias) but other cacti do not escape. Tough-skinned Astrophytums, Echinocacti, Cerei and Gymnocalyciums collapse under a heavy infestation. Epiphyllums, Rhipsalis and Zygocacti dry up shortly if the insects are not controlled. Shrubby Mesembryanthemums and stemless mimicry plants wither away. In fact, hardly any succulent is immune to this pest.

To control scale insects a good contact insecticide with an oil emulsion base must be used. The writer has found that one thorough application will often do the trick. The oil spray forms a thin film over the insect and snuffs out its life. Because of this film, the plants may be burned if sprayed in sunlight. The operation should be performed on a cloudy day or else the plants should be moved to a shaded location. The writer has found "Greenhouse Volck" a satisfactory product in combating the insect. A stronger solution can be applied on the tougher cacti if caution is exercised, and a weaker mixture employed on the tender Faucarias, Glottiphyllums, Haworthias, and the like. When a standard spray is not available, a soapy solution mixed with nicotine may be used. Use about a teaspoonful of Black Leaf 40 to a quart of soapy water.

Aphids.—As a rule, these soft-bodied insects attack only soft, tender growth. Consequently they do not cause extensive damage to cacti, but many succulents become stunted because of them. More frequently they infest flower buds and arrest their development, being often noticed on the flowers of the night-blooming Cereus and Opuntias. Aphids or plant lice may be yellow, orange, brown or black, and in size slightly larger than a pin-head. Like the mealy bugs and scale, they congregate in dense masses and weaken the plant by sucking its juice. Aphils reproduce at a rapid rate and are active feeders, but it is hardly possible that they would cause the death of a mature succulent. They can be controlled with a contact spray consisting of one teaspoonful of nicotine (Black Leaf 40) to a quart of water. Within a minute or two after the spray touches the aphid it is killed, and a few hours later the body has been reduced to a "burned" speck. If other insects could be controlled as easily as the aphid the gardener would have no great need to worry.

Thrips.—The damage caused to cactus plants by these minute insects is not alarming, as they attack only seedlings or very tender-skinned species. The very juicy Mesembryanthemums—Argyroderma, Glottiphyllum, Conophytum,

Fenestraria and Faucaria—are more susceptible to their injury, and although the damage will not prove fatal the plants are left scarred or pitted and unattractive. Thrips are tiny brown or black insects, and when disturbed they seemingly jump quickly for cover. Nicotine solution, consisting of ½ ounce of Black Leaf 40 to a quart of water, is sufficient to kill thrips.

Red Spider.—This cosmopolitan little eight-legged insect is not a true spider, but is a mite and a constant menace to house plants. The insect is so small as to be hardly perceptible to the naked eye. However, its presence is easily recognized by the characteristic appearance of the infested leaves, being blotched and rusty, and covered with webs of silken threads under which the mites live. Red spider is known to attack the leaves of Pereskia and young growth of Hylocereus, Selenicereus, or Acanthocereus, but it seems to prefer many other succulents. The area attacked ultimately dries up. The mites love hot and dry conditions such as are given to desert plants. If frequent syringing does not control the pest, an oil emulsion spray is advocated.

Ants.—These diligent little workers often become a nuisance in a cactus or succulent plant collection. Directly they do not injure the plants, but indirectly they are responsible for the plant's death since the ants maintain aphids and mealy bugs. Ants are very fond of the "honeydew" which such insects give off, and for the sake of this sweet excrement they play the role of a virtual nursemaid. The most satisfactory control for ants is poison bait. If a drop of poisoned syrup is placed on a piece of cardboard in the ant trail, the following morning very few ants will be noticed crawling around. The procedure should be repeated once, and the remaining stragglers finished off with a contact spray consisting of one teaspoonful of nicotine to a quart of water. The writer has found "Terro

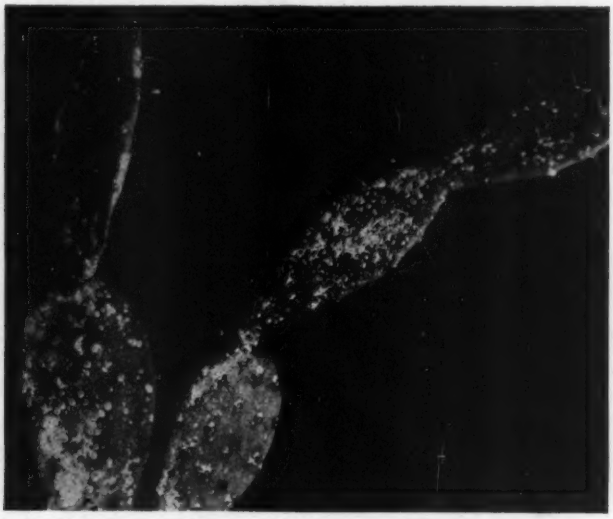


FIG. 47. Joints of Prickly Pear Cactus (Opuntia) heavily infested with scale.

Ant Killer" (procured at the drug store) efficacious in destroying ant colonies.

Sow-bugs or Pill-bugs.—This common greenhouse pest is not an insect but a crustacean. It carries a shell on its back, like an armadillo, and when disturbed rolls itself into a ball or pill. Primarily it is a scavenger, living on decaying vegetable matter, but it often changes its habit and feeds upon juicy morsels such as the tender cactus seedlings and succulents. The writer has on several occasions seen with his own eyes the sow-bugs attack Lithops and Argyrodermas and even Opuntias. Usually they chew a hole or partially scoop out a cavity at the base of a plant; then the plantlet topples over or becomes infected with a rot disease. A poison bait composed of nine parts of brown sugar to one part of Paris green, scattered about the benches, under pots or on the soil, will aid in exterminating these pests. Several preparations for their control are also offered on the market. The cheapest remedy is half of a potato scooped out and placed on a bench as bait. During the night the sow-bugs will be drawn to the potato, and in the morning it will be easy to dispose of them.

Grasshoppers and Crickets.—Both these insects are voracious feeders which can do considerable damage before being apprehended. The plants most likely to be attacked are the Opuntias, Epiphyllums, Zygocacti and Rhipsalis, or any of the cactus or succulent seedlings. Grasshoppers usually gain entrance to greenhouses through unscreened ventilators and doors. Crickets live under rocks or hide in crev-

FIG. 48. Aphids or plant lice feeding on apical shoots of *Sarcostemma viminale.*

ices. Both are destructive and should be hunted when injury is noticed on plants. Since they chew their food, a stomach poison must be used to exterminate them. However, if only a few are seen it is simpler to catch and crush them.

Millipeds.—These little animals, commonly known as "thousand-leggers," frequent greenhouses where an abundance of decaying organic matter is present. Although they feed mostly on decaying matter, they will often attack roots and stems of seedling cacti and succulents. The worms can be baited with a sliced potato dipped in a Paris green solution or in arsenate of lead. Tobacco dust worked into the soil will also give relief.

While there are a few more greenhouse pests that may add trouble to the cactus and succulent plant fancier, the damage they do is negligible.

FIG. 49. *Haworthi pilifera* photographed by Otto Young in Maine. The "windows" on the ends of the leaves are translucent allowing the maximum of sunlight into the leaf.

FROM ENGLAND

Unfortunately, I have been having trouble with root mealy bugs since making a purchase of some seedlings from a local store. It spread rapidly and I have been trying ever since to catch up. The soil I use contains a fairly high percentage of humus which seems to act as an incubator. I tried using less humus and the bugs didn't seem to thrive as well and neither did the plants. It seems best to keep up the humus and to try to destroy the bugs some other way.

Since I wrote you last, most of my Lithops have been in bloom, most of them for the first time. I had some seeds given me from Port Elizabeth and the seedlings are now three years old and instead of blooming in the spring, as my mature Lithops have done, twenty-two varieties produced flowers in the early part of October. This must correspond with the flowering season in their native habitat in South Africa. I thought it quite strange that Lithops grown under identical conditions should bloom at big intervals between them. Perhaps they haven't grown old enough to accustom themselves to conditions in the northern hemisphere. I have a great weak-

FIG. 50. Seedling of *Testudinaria elephantipes* showing the delicate leaves, Haselton photo.

ness for Lithops and have quite a large collection. They seem to grow well here and have the superlative quality of not growing too large. I have 19 varieties of *Pleiospilos* including the rare *P. Archeri* which has flowered.

I also get a lot of satisfaction out of two other plants. *Testudinaria elephantipes.* It's fascinating to watch the bark growing as the swollen stem gets larger. The books say they are slow growers but mine has grown very rapidly from seed in four years. It is in a pot where the root can grow out through the bottom into the moist cool gravel on the staging. It grew slowly until I tried this method.

Another plant I've not read anything about is *Bowiea Kilimanjarica.* It is undoubtedly a *Bowiea** but it produces thin leaves about an eighth of an inch wide and five-sixteenth long. The bulb is about an inch in diameter and for the first time put up a flowering spike as in the typical Bowiea. It has produced a second bulb by the old one splitting in two.

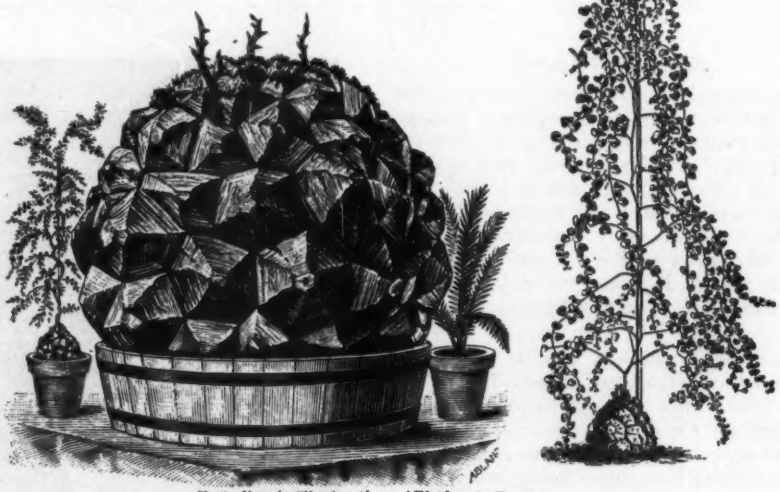
C. R. HANCOCK.

*See Fig. 246, "Succulents for the Amateur"—Brown.

TESTUDINARIA ELEPHANTIPES.

Among the many rare and curious plants shown by us at the Pennsylvania Horticultural Society's exhibition, none attracted more attention than three large specimens of the "Elephant's Foot," or Turtle Back plant, as it is sometimes called. These plants were imported especially by us from the interior of Africa, and the largest, well illustrated herewith, is said to be over 200 years old. The outside of the body of the plant appears like a mass of carved wood, from the top of which a number of twining stems grow to the height of 20 or 30 feet. These are covered with delicate smilax-like foliage, well illustrated in small cut herewith, and pretty yellow, acacia-like flowers. The interior portion of the barky shell is a solid mass of fleshy substance, which is said to be relished by the Hottentots, and, therefore, the plant is sometimes called Hottentot Bread. We have a limited number of quite small plants of this wonderful curiosity to dispose of at $1 each. Also three large specimens. Price of these is $100, $150 and $200 each.

Our finest specimen weighs 200 pounds, and is 56 inches in circumference. These are, no doubt, the only specimens in existence in the United States.



Testudinaria Elephantipes (*Elephant's Foot*).

ARISTOLOCHIAS. No plants attract greater attention when in bloom than these. Some have flowers 1 and 2 feet in length, resembling, as described, "a flying eagle," "a boat," "a duck," "a Dutchman's pipe." They are of rapid climbing growth; plant out in summer, take up in the fall; sure to delight when in bloom—two sorts. Price, 30 cents each; the 2 for 50 cents.

Cissus Discolor. The most beautifully variegated-leaved plant that we know of; no other climbers combine so many different colors. Price, 25 cents each.

FIG. 51. A page from the 1891 catalog of A. Blanc & Co. showing a 200 lb. "Elephant's Foot." Probably the largest plant in this country today weighs only a few pounds.

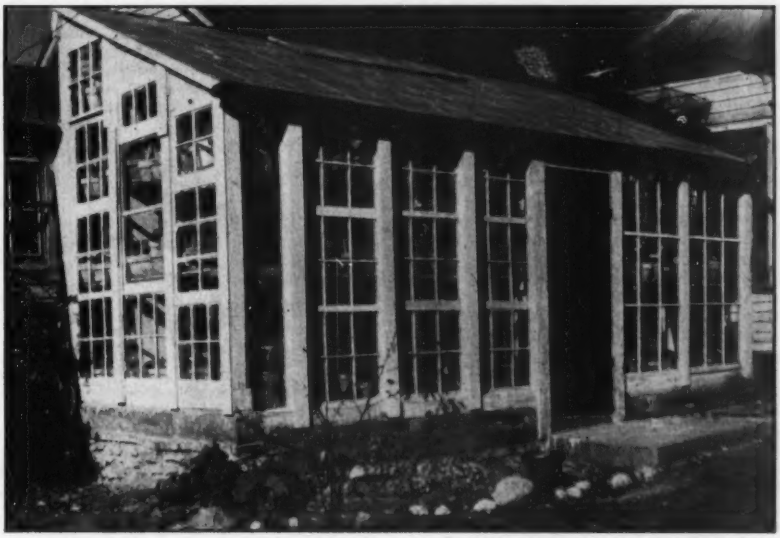


FIG. 52. The glasshouse that Arthur built.

ANOTHER GLASSHOUSE

In various issues of the CACTUS JOURNAL I have avidly read all articles about greenhouses erected by different cactophiles. When visiting cactophiles who own greenhouses I am sure I have been a "pest" asking questions, examining them, etc. All of us dream that sooner or later we can own one in which to winter our collections and to raise seedlings. For years I have felt the need of owning my own in place of my usual procedure of renting a bench each fall in my friend's greenhouse. This need was brought home to me with a startling suddenness June 11, 1944, when my friend closed his greenhouse for the duration on account of lack of help. This left me without a winter home for the greater portion of my large collection of cacti and succulents. Between the basement, the attic, and the other rooms I could keep at the most only 500 and what about the other 1500 plants? Something had to be done and done quickly as in a little over 3 months we could expect frost.

This is how I finally solved my problem in wartime, with lumber frozen later on, no help, etc. This may help other collectors who have held back for various reasons. First I contacted other greenhouse owners in neighboring towns to find out if there was any possible chance of renting a bench or part of a bench. The result was, those that did have room wanted an exorbitant price and the majority didn't have any room. One fellow offered me his whole greenhouse if I would heat it which was impossible for me as I would either have to tend to it personally or hire some one to fire the boiler—so that angle was out. As August was my vacation month I spent the rest of my spare time making plans.

Many of you readers undoubtedly recall the various articles I have written about our attic, the wintering many plants there and raising cacti from seed. The first day of my vacation was spent in this attic cleaning out the years' accumulations even if the thermometer reigstered about 100 in the shade outside. Next I sawed out the siding between the supports on each side of the lone window facing the east. For windows I used 2 windowshields from an old Erskine car in a junk dealer's yard. They were long, narrow and just right, and were purchased for the nominal sum of fifty cents. The east side and west side was covered with Celotex. On the north and south side the rafters touched the floor. I was surprised at the amount of light in the attic now and was certain it would be much warmer, and the winter proved I was correct. In the past I have kept 50 plants here successfully and last winter kept 100. I can even increase the number another year.

The next step was to a cooler spot, our basement, which was in contrast to the attic where I could soak a Turkish towel with perspiration in an hour. The west basement was selected as it contained two windows facing the west, and in the winter time when the temperature outdoors would drop to below zero, the coldest recorded here was 26 above Zero. I have kept about 25 of my hardier and largest Opuntias here and was certain I could keep more. First it was cleaned out again and then I knocked a hole in the wall between the two windows one on the south corner and one on the north corner, so there was plenty of room between. These windows could be opened but as I had first used another car window, built in, this one could not be opened. In cleaning out this basement I tore down old shelves and acquired much needed lumber. I also built a bench along the west wall, full length of the basement. These three windows made this a well lighted room and as it was cool in the hot summer our dog soon found this an ideal spot to sleep. In fact we spent much time on Sundays resting in easy chairs and reading. This winter I have kept 60 of my largest plants here, including various Opuntias, Echinocereus.

On the program next was our west sun porch. The porch was in a terrible condition, that is, what was left of the foundation, which was a pile of bricks in one corner and a rotted post. I have kept cactus here until November and was able to put some plants here in March and I hoped to kill a couple birds with one

stone, by repairing this porch. This porch had sagged two and one-half inches and it wasn't much trouble to jack it up and take out the pillar and the bricks. I made a good solid foundation of lime rock from the local stone quarry and on top of this built around the porch on both sides of hollow tile entirely enclosing the porch. This would affect the entire house by making it stronger and warmer. Then I reset the windows and doors and covered the inside with Celotex. I might add that the sills were eaten out by termites and as I couldn't purchase any sills I made a good soupy cement mixture and filled the hollow sills with this mixture. Before entirely dry I renailed the flooring into this cement and now I defy the termites and I will not have to worry about those sills in the future. In the past winters the temperature between the outdoors and the porch was two degrees at night or cloudy days. For last winter on December 26 the temperature outdoors was 16 below Zero and in the west sun porch it was 8 above Zero, a difference of 24 degrees. I experimented with about one dozen plants from Oklahoma and Colorado here and they wintered O.K., so next winter I hope to increase the amount to at least 2 dozen. But this was only a drop in the bucket and time was steadily moving towards fall and my vacation's end.

At last I am ready to begin work on my greenhouse. The east sun porch matched the west one in size, shape and condition, so losing no time we tore it down completely, which gave me a lot of much needed lumber, 2 by 4's, boards, some planks, etc. All lumber was frozen as far as I was concerned, so I needed every stick. This also gave me some very fine windows, two were 3 feet, 10 inches long by 30 inches wide. Another group fastened together were 6 feet, 4 inches high and 6 feet, 8 inches wide. The most difficult task was moving the solid cement steps which measured 3 feet long; the first step was 15 inches high, the second step was 7 inches higher and the third step another 7 inches higher, so the highest step was 29 inches high, and they must have weighed a ton, also 6 feet away from the house. It took us an entire A.M. to move it over by the groaning, grunting and straining method and I was the one to do the lifting by a big plank. I say we, as my Dad helped some in all this work although he was 77 years young. As it was impossible to hire a regular carpenter, an old friend of the family, another man who was a retired carpenter also 73 years young, helped me all the way; they did the blocking and grunting while I did the lifting and groaning. We sure called it a day, after moving it.

Next A.M. we started on the foundation and as I had all the hollow tile in town we used many good solid pieces of lime rock from our quarry and put the hollow tile on this which made an excellent foundation. Yes sir, I had lots of nerve to attempt this without all materials and equipment on hand. While in swimming at a near-by gravel pit I had located two 6" by 6", 18 foot long sills, so securing these we had more than enough for our sills. Using our 2 by 4's and what windows we had, the sides of our greenhouse was commencing to shape up. I might add we had laid it out to be 20 feet long, 8 feet wide, 16 feet tall at the house, slanting to 10 feet tall. The west and north side were attached to our house as you can see from the picture.

A lady from a neighboring town who was deeply interested in cactus had visited my garden and collection many times. Each time I would give her cuttings extra plants, etc. Her husband called me on the phone and said that he understood I was building a greenhouse and if I needed windows he could help me out as he knew of some for sale very cheap. So I was fortunate to purchase 16 windows 30 inches by 30 inches for the nominal sum of twenty-five cents each. From another chap who tore down three greenhouses I was able to purchase sash bars, greenhouse glass, putty, and he also let me use his putty gun. Now we really went to work in earnest and in a few days our greenhouse was entirely enclosed.

Our next problem was the heating system and I was fortunate in purchasing a used but in A-1 shape the new sensational "Warm Morning Coal Heating Stove" that will hold 100 lbs. of coal and will hold fire and heat for 24 hours. We built a platform of bricks and cement and placed the stove on this close to the steps by the door into our home. The stove pipe was fastened onto the stove pipe from the kitchen stove and it certainly draws well.

I decided to leave the north and the northwest corner free of benches or shelves and place my tall plants here such as *Nytocereus serpentinus, Eriocereus* species, *Cereus peruvanius,* etc. Along the east, south, and southwest side I built good strong shelves of 4 tiers. I did not plan it as a display greenhouse but as a winter home, yet it is possible to easily look over the collection if one is careful in how you bend over. I might add this greenhouse is packed from bottom to top and many smaller pots are set on the larger ones also. For the high shelves I have a step-ladder and a ladder. All windows both inside and out were reputtied, all cracks were filled with crack-filler and the inside and out was painted white, except the shelves which were painted a dark green. I have one regular ventilator and on sunny fall or spring days the temperature soon rises to the 80's and 90's. Even in winter on cold days this greenhouse takes but very little fire.

On a normal winter day the stove only uses two hods of coal. This heat is a dry heat and I have a pan of water on the stove all the time and it needs refilling about three times a day. My plants require much more water than in the past winters in the other greenhouse, even with this pan of water. Except on a windy day the stove is closed tight most of the time, the only time it requires much firing is when the wind is in the east, northeast or southeast. On the 16 and 17 below Zero weather I found some plants frozen that is on the bottom bench in the southwest corner. I made a small platform by the stove and set an electric fan on it, so it would blow over the stove and into the corner. This solved that problem and in a few minutes it would raise the temperature 20 degrees. On a windy night with the wind from the southeast I would have to keep the fan on all night. This also helped the rest of the greenhouse by circulating the air. The lower half of the greenhouse would have a temperature in the 40's and the upperhalf in the 70's.

In the upper part I have my succulents, Epiphyllums, Zygo's, Huernias, Stapelias, Carallumas, Crassula's, etc., and cacti from the warm climates. On the lower half I am keeping my hardier plants from Texas, New Mexico, South America, such as Echinopsis, etc. My plants receive all the sun in the A.M. and in winter time in the P.M. up until about 3 P.M. and as the days get longer they receive more sun. My Echeverias and Bryophyllums have certainly been a riot of color this winter with hundreds of blooms. I never had any idea they could be so beautiful.

I can add to this greenhouse any time I wish and it almost paid for itself the first winter. My plants are home, I didn't have the task of loading them into my car, driving to the greenhouse, unolading my car, especially PRECIOUS GAS, wear and tear, time, etc. All this work on our home and greenhouse cost less than $250.00. I already have several improvements planned for next year. And believe me, I certainly have had many enjoyable hours not only building it, but working around my plants in the winter time.

ARTHUR BLOCHER, Amboy, Illinois.

AFFILIATE NOTES

Please mail your Affiliate Notes to Chas. A. Place, 5048 Hook Tree Road, Rt. 1, Box 388T, La Canada, California.

Mrs. William Bright (Pub. Ch.) writes:

"The Southern California Cactus Exchange continues to go ahead with a bound this year. The March meeting was the largest of the year, over 100 being present and 16 new members were taken in and enthusiasm was at a high ebb showing that the public is ready and waiting for such activities after its long rest due to the war. The March meeting was a red-letter day, though, in the history of any plant organization or in any year because the program was furnished by Mrs. Monmonier of Ventura who spends her entire time in growing and developing new hybrids of Epiphyllums. She spoke on this genus of cactus and gave us many helpful hints in their care and growing and also spoke on their diseases and on soil mixtures best fitted for their growth and blooming. After her talk she exhibited a long series of colored slides of some of the blossoms taken in her lath house and garden and no orchid or other flower can compare with these exquisite examples of the horticulturist' handiwork. The Exchange has been giving special attention in its programs and discussions, to Epiphyllums and expect to maintain a division devoted exclusive to this line of endeavor catering through talks and demonstrations to those most interested in these plants. Interest seems to be at high tide in Epiphyllums and there are a few dealers here in Southern California where they can be obtained, so there is no reason that those who wish to specialize in them will not have every aid possible to successfully grow them."

"On April 15, there were 54 present and six new members were accepted. We are fast reaching the 100 mark. The enthusiasm of our new President, Mrs. Mark, in building up the Exchange after the slowing down of the last couple of years is certainly bearing results. Mrs. Mark has secured an outstanding program every meeting this year and the April program was no exception. The program for this meeting was one that a far larger garden group or even a botanical class would have been proud of. Our old friend, the President of the National Society, and a long time member of the Exchange, Mrs. Maybelle Place, spoke on 'The True Species of Epiphyllums,' and held the attention of her audience for over an hour. She has spent the last two years in studying the true species and attempting to sift out the confusion in the duplicate naming of some of the original plants. Also she has made a wide search to obtain the 16 listed plants of B. & R. and has succeeded in locating 14 of them. She also gave us some of the highlights on the history of the finding of these original plants, tracing the earliest to the sixteen hundreds. She followed her talk with a series of colored slides of some of the Epiphyllums from the Beahm Epiphyllum garden. The pictures were of some of the new Steele hybrids, just placed on the market, and very beautiful. One of our members reported that he has a Conway Giant, grafted on an opuntia root stalk and that it covers a 16 foot trellis and last year bore 400 flowers."

A most grateful plant, the Epiphyllum.

From the Cactus Digest, Ladislaus Cutak, Editor:

"The Henry Shaw Cactus Society held another grand meeting. Thirty-five members and several visitors were present, Speaker, Mrs. C. G. Blandford on Cacti. From the talk on 'Soils and Fertilizers,' by Herman A. Kropp: Cactus will grow in sand and be kept alive for long periods, however, it is better to plant them in a porous soil mixture consisting of from ¼ to ½ sand depending upon how sandy the soil is that is being used. The soil requirements for the cacti does have some differences, however, a loose, porous soil not too rich in nitrogen is most desirable. Some species also benefitted by the use of lime. Fertilizer is not needed, however the addition of bone meal, wood ashes and cow manure that has been well dried may be used, but care must be taken not to overfertilize. Liquid manure may be used if your plants are in active growth, however, this should not be done during the dormant period, but during the late spring and summer. Now for contrast you might compare the need of what many of us call Night Blooming Cereus. Here a good soil mixture should be very porous so that water would drain through quickly. A mixture of good garden soil, sand, broken pots and 1/10 part of dried cow manure and a pint of bone meal should be used to each bushel."

The opening gun, for big things doing in the Cactus world, in the spring of 1945, was fired by Detroit, the "report" follows. I hope we will feel the concussion and that perhaps it will shake us up a bit.

Miss Wava K. Frye (Sec.) writes:

"The Detroit Cactus and Succulent Society held their annual exhibit at the Garden Center, Belle Isle, on March 25 to April 1, with a splendid attendance. The response to calls to amateur growers of Detroit for prize specimens was very gratifying and served to bring to the attention of the members the fact that there are numerous cacti enthusiasts in our city. Our Society is only two years old. Ten new members were enrolled and Dr. Elzada Clover of the University of Michigan was voted an Honorary Member at our last meeting. The University of Michigan loaned us thirty-eight beautiful plants, many in flower, that inspired a competitive spirit. The members were so pleased with the Kodachromes mailed to us by W. Taylor Marshall that we also had a private show at the home of Mrs. Lester Adams on Tuesday evening to discuss and admire each picture. A nice gesture on the part of the National Society to the Affiliates. The Detroit News loaned us forty-eight Kodachromes of Cacti which were shown. On the afternoon of March 25, Dr. Clover lectured on the subject 'Home Care for Amateurs.' Mrs. Anne Labadie gave a grafting demonstration and also took the prize for the best display by one exhibitor. The Detroit Public Library displayed books and magazines pertaining to the subject and as a result of presenting the books, 'Cacti for the Amateur,' and 'Succulents for the Amateur,' no doubt new orders will be mailed to the publishers. One of the rooms was decorated with a large painting of a desert scene recently acquired by one of our members, Mr. Anthony Barone. The Society is proud of its exhibit and much credit should be given to John T. Cochran, program chairman, and his committee. We are determined to have a bigger and better show next year and have profited by this year's experience."

A fine show, good spirit, and great co-ordination.

Mrs. Janet Allen (Sec.) writes:

"The Ameatur Cactus and Succulent Society of British Columbia are making plans for a Cactus Show in late May or early June. I will send more information when plans are further developed. We enjoyed Mrs. Rush's article on Sedums. Several of our members said they would like to see included the Sedums that are native to British Columbia. As given in Henry's key they are: *S. oreganum* and *S. obtusatum, S. spathulifolium, S. divergens, S. stenopetalum, S. douglasii, S. integrifolium* and *S. alaskanum, S. rosea,* and *S. acre* (escape)."

Would like to see your show and hunt for some Sedums.

EPIPHYLLUM NOTES

This page will be a regular feature devoted to a description and illustration of a hybrid each month. Translations of the Epiphyllum material from "Kakteen Kunde" will be reviewed by Ed Gueguen.

Editor of the Cactus Journal:

I have a news flash for your readers of the Cactus and Succulent Journal. The new genus *Lobeira* (Jour. XVI, pg. 175) has been traced to its native haunts. I found it today at an altitude of about 7500 ft. on the foothills of the Cerro Hueitepec. It grew about 30 ft. up on a horizontal branch of a 100 ft. oak, all told, about 100 flowers past bloom but in young fruit. The plant was a huge pendant and upright mass about 6 ft. long and 4 ft. across—the hanging branches 3-4 feet long.

I also have found in a patio garden here, a pure white form of *Epiphyllum Ackermannii,* but no one knows its origin.

E. J. ALEXANDER.

April 17, 1945

ANNOUNCING

The first "Epiphyllum Book" is announced for November delivery. Descriptions and color plates are being completed this flowering season. The book will sell for $2.50 and will be stocked by book dealers and growers. Those who have expressed their interest in this book will be notified when to remit. This newest contribution to cactus literature will be available for winter study and will serve as an ideal holiday gift. Like all of Abbey Garden Press books it will be profusely illustrated and is written for amateurs who are the majority growers of this group of plants. An illustrated form for making understadable descriptions will lead to a definite plan for classification. The aim is to record the best known hybrids, eliminate minor variations, and to clarify the accumulation of names now in circulation.

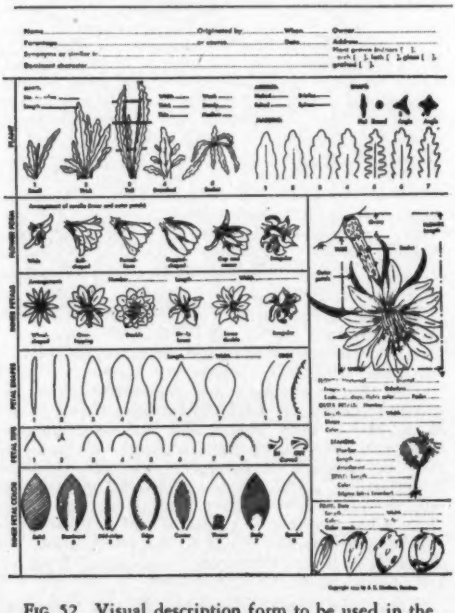


FIG. 52. Visual description form to be used in the new Epiphyllum book.

Mrs. Gertrude Beahm of Beahm Gardens, 2700 Paloma Street, Pasadena, California, is awarded a life subscription to the Cactus and Succulent Journal for the most workable classification of Epiphyllum hybrids thus far devised. Her system takes into consideration not only color groups but the flower form as well. See JOURNAL, Vol XVII, pg. 38.

NEW EPIPHYLLUM LIST

Beahm Gardens, 2700 Paloma Street, Pasadena, California, has just issued their 1945 list of Epiphyllums —Phyllocactus. The plants are listed under six types of shapes and seven color groups. Many of the long desired Steel hybrids are included as well as the old standards and newer variations. The iluustrated list is free. Visitors are welcome to visit the gardens during May and June while the plants are in flower.

CAPTION TO COVER ILLUSTRATION

"Larva of *Apodemia palmerii marginalis,* dorsal view, enlarged." From Bulletin of the Southern California Academy of Sciences, Vol. XXXI, pg. 39. Strange things are happening these days; first we find a petrified Opuntia with a Cereus flower and now we wonder if butterflies are related to cacti!

NEW WHOLESALE LIST

Albert Arozena Nursery, 1518 East Rosecrans Ave., Compton, California. General list of cacti and succulents including assortments that are the most popular for the trade. List free to dealers only who make the request on their business letterhead.

ECHINOPSIS IN NEW JERSEY

The picture of an Easter Lily Cactus (Echinopsis) illustrating your article in the April issue of The Home Garden reminded me of a picture of one of my plants. I have at least 20 different varieties of cacti, but I like this cactus the best. Not only does this fascinating specimen bloom freely indoors, (even in an unheated room, southern exposure) but when taken out of its crude clay pots and planted outdoors, it blooms as profusely as an annual. My soil is heavy clay, which I mix generously with coal ashes. I also water my cacti frequently. I also water them during their rest period and cultivate the soil frequently.

I also have good luck with the Starfish Succulent (*Stapelia variegata*). It has produced strange flesh-like flowers admired by all of my friends. I plant my cacti outdoors in May; a few small ones I leave in the pots. At this writing my Easter Lily Cacti have many buds; a small one, hardly two years old, also is budding, which I consider rather remarkable.

MRS. EMMA J. BAREISS.

SPINE CHATS

LADISLAUS CUTAK

More than once have I been informed that Johnson's cactus catalog has intrigued persons who happen to get hold of a copy. There is no doubt that this gentleman puts out a very fine catalog. Mrs. H. W. Humphrey of Plymouth, California, is a case in point. Her mother, who had a small collection of cacti, sent her Johnson's picturesque catalog in 1941 and the illustrations so entranced her that she decided to secure some of these fascinating plants for herself. She's been getting her cacti from Johnson, Kelly and Mrs. Bakkers and is well satisfied with her purchases. At present there are 250 specimens in her collection. Leona Humphrey's interest lies in crests and her favorite cacti are *Echinocereus Engelmannii, Echinocactus Grusonii, E. polycephalus, Oreocereus Trollii, Mammillaria bocasana, M. plumosa* and *Astrophytum asterias*. Her husband is owner and developer of Pine Lodge Park, an all-year-round cabin land on the Consumnes River, located about 9 miles from the mining town of Plymouth. Having watched Mr. Humphrey do so much fine work in fireplace and other rock construction, Leona thought that she'd like to try her hand in building a location for her cacti during the summer months. She made a large horseshoe-terraced affair, with rocks from the nearby hills, cemented them together so as to form ledges and filled them with sand for plunging the pots. The whole thing is about 20 feet across and the center is covered with mottled shale laid in cement. Mrs. Humphrey was born in Marion, Ohio, but moved to California as a mere child where she has resided ever since. For many years she used to teach history and Latin in the high school at Dixon but gave up teaching five years ago to be with her husband all the time. In 1931 Mr. Humphrey bought an old ranch in Amador County, surveyed it into lots, laid out the roads, had a well blasted down into solid granite, laid the water pipes to the lots, etc., and developed an all-year playground among the pines of the lower slopes of the Sierras. The place is located about halfway between Lake Tahoe on the east and Sacramento to the west. Men working in the logging and saw mills above the Park are all-year-round residents in Pine Lodge Park with their families and many other folks from the surrounding towns have their week-end homes there also.

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Two charming ladies recently returned from an adventurous bus trip to Florida and in a roundabout way arrived in St. Louis for a chat with this writer. These two Illinoisans, Mrs. Fred M. Beightol of Freeport and Mrs. Nettie M. Killian of Dixon, have been pals of long standing. The former is the present Secretary of the Freeport Cactus Club, an enterprising group of women who meet on the third Thursday of each month to discuss their hobby. Mrs. Beightol began collecting cacti about four years ago, starting out with the fast growing orchid cacti or Epiphyllums but loudly proclaims that she made a mistake in choosing these plants because they soon took up too much space in her home. Gradually she disposed of them and turned her attention to small compact types, such as the pincushion varieties, and the Mammillarias have remained favorites ever since.

Mrs. Killian has practised her cactus hobby for seven years and really has built up a wonderful collection during that time. She owns about 800 good-sized specimens which fill three average rock gardens during the summer months. In winter the plants are stored in a public greenhouse where they are on exhibition and attract much attention.

Both Mrs. Killian and Mrs. Beightol are members of the Cactus and Succulent Society of America and they proudly displayed their membership cards to me indicating that they value their membership in this fine organization.

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When the Island of St. Christopher, now better known as St. Kitts, was to be divided between the English and French over two centuries ago, it was ordered by the consent of the two nations that here should be planted three rows of bushlike Opuntias between the bounds of the one and those of the other, they thinking that these prickly plants would be the strongest fortifications to hinder the attempts of one another in case of war. What chance would such a fortification have today against modern implements of war? In those early days of colonization such a thorn-beset cactus fence was thought to scare any living creature from attempting to get over it. St. Kitts was discovered by Columbus in 1493 and colonized by the British in 1625. It is one of the Leeward Islands in the Lesser Antilles group.

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Our friend, Dr. Elzada U. Clover of Michigan University, will again invade Arizona this summer to continue her studies in the canyons of that state. Her most recent work, "Floristic Studies in the Canyon of the Colorado and Tributaries," co-authored with Lois Jotter, appeared in The American Midland Naturalist (32:591-642, Nov., 1944) and is based upon collections these two women made on the Nevills Colorado River Expedition of 1938 which consumed 42 days and covered a distance of approximately 660 miles. Although several expeditions have explored the canyons, vrey little botanical work has been made within the canyon walls. Dr. Clover has made the most complete investigation of plant life, enumerating more than 400 species, including 37 members of the *Cactaceae* and a few other succulents. It is believed that landslides and floods are the rapid and effective means of plant distribution characteristic of canyons and cholla cacti apparently were brought down vertically in this way to repose and grow on the talus of the river banks.

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With the war in Europe ended, it is hoped that some of the European scientific literature will soon become available to Americans. A few foreign publications have already come in, incluring the Swedish *Arkiv för Botanik* in which Harald Fröderstrom describes four new species of *Sedum* from the Himalayas. The first is *S. atsaense,* a dioecious, glabrous stonecrop with a long rootstock and large inflorescence; the second is *S. ciliocaule,* a graceful erect perennial producing long petiolate leaves in rosettes; the third is *S. grawalicum,* an insufficiently known plant; and the last is *S. stenophyllum,* another glabrous perennial stonecrop.